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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/559,904	12/08/2005	Seung-Don Choi	LEE-0044	9625

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CANTOR COLBURN, LLP
20 Church Street
22nd Floor
Hartford, CT 06103

EXAMINER	
DAVIS, PATRICIA A	

ART UNIT	PAPER NUMBER
1795	

NOTIFICATION DATE	DELIVERY MODE
09/01/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptopatentmail@cantorcolburn.com

Office Action Summary	Application No.	Applicant(s)	
	10/559,904	CHOI ET AL.	
	Examiner	Art Unit	
	PATRICIA DAVIS	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 June 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) *2,3,8 and 9* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 4-7 and 10-* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/11/09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The Applicant's amendment filed on June 19, 2009 was received. Claims 1 and 5 were amended. Claims 2, 3, 8 and 9 were cancelled.

2. The text of those sections of Title 35, U.S.C. code was not included in this action can be found in the prior Office action issued on March 19, 2009.

Claim Rejections - 35 USC § 102

3. The claim rejections under 35 U.S.C. 102(b) as anticipated by Maeda on claims 1, 2, 4, 5, 8 and 10 are withdrawn, because independent claims 1 and 5 have been amended and claims 2 and 8 were cancelled.

Claim Rejections - 35 USC § 103

4. Claims 1, 4, 5 and 10 are rejected 35 U.S.C. 35 103(a) as being unpatentable over Maeda in view of Langan (U.S. Patent No. 4,913,988).

Regarding claim 1, Maeda teaches a lithium non-aqueous electrolyte secondary cell comprising a cathode active material, comprising cobalt oxide particles surface-coated with magnesium hydroxide. Maeda further discloses that the composition of the magnesium hydroxide has a BET specific area value of 0.5 to 50 m^2/g (see col. 2, lines 19-31 and col. 3, lines 7-17).

Maeda does not specifically teach that the metal hydroxide is present in an amount of greater than 0 weight percent and less than 10 weight percent.

However, Langan teaches that the cathodic material additive can be made of alkaline earth metal hydroxides to improve the cell performance. Langman further teaches that calcium hydroxide can be used to improve closed circuit voltage retention after storage at elevated temperatures and is mixed into the cathode material at a weight percent preferably of 1.3% (see col. 2, line 22- col. 3, line 1).

Therefore, it would have been obvious to one with ordinary skill in the art to incorporate a metal hydroxide with a weight percent of 1.3% in a lithium ion secondary battery to improve the closed circuit voltage retention after storage at elevated temperatures.

Regarding claim 4, Maeda teaches a lithium non-aqueous electrolyte secondary cell consisting of a magnesium hydroxide for the cathode active material (see col. 3, lines 7-17).

Regarding claim 5, Maeda teaches a non-aqueous electrolyte secondary cell (lithium ion battery) comprising a cathode, an anode, and a non-aqueous electrolyte (see col. 2, lines 19-31 and col.9,lines 60-67). Maeda further discloses that the composition of the magnesium hydroxide has a BET specific area value of 0.5 to 50 m^2/g (see col. 3, lines 7-17).

However, Langman teaches that the cathodic material additive can be made of alkaline earth metal hydroxides to improve the cell performance. Langman further teaches that calcium hydroxide can be used to improve closed circuit voltage retention after storage at elevated temperatures and is mixed into the cathode material at a weight percent preferably of 1.3% (see col. 2, line 22- col. 3, line 1).

Therefore, it would have been obvious to one with ordinary skill in the art to incorporate a metal hydroxide with a weight percent of 1.3% in a lithium ion secondary battery to improve the closed circuit voltage retention after storage at elevated temperatures.

Regarding claim 10, Maeda teaches a lithium non-aqueous electrolyte secondary cell consisting of a magnesium hydroxide for the cathode active material (see col. 3, lines 7-17).

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda in view of Langan and in further view of Hibara (JP 2002-8718).

Regarding claim 6, Maeda and Langan do not teach that the electrolyte comprises at least one additive selected from the group consisting of the compounds represented by the following formula 1-4: wherein, each of the R_1 and R_2 is independently selected from the group consisting of H, a C_1-C_5 alkyl group, a halogen atom, and a phenyl group and a phenoxy group non-substituted with a C_1-C_5 alkyl group or a halogen atom (formulae 1, 3, and 4); and R is C_1-C_5 alkenyl group or a C_1-C_5 alkyl group (formula 2).

However, Hibara teaches a non-aqueous electrolyte secondary battery, wherein the electrolyte comprises the following additives and each R_{11} and R_{12} is independently selected from the group consisting of H or a C_1-C_5 alkyl group (see paragraph 0031 claim 5, formula 4b). This is used as an additive to be added to the secondary battery electrolyte to improve the charge and discharge characteristics (see paragraph 0001).

The combination of familiar elements is likely to be obvious when it does no more than yield predictable results. See *KSR Int'l v. Teleflex Inc.*, 127 Sup. Ct. 1727, 1742, 82 USPQ2d 1385, 1397 (2007) (see MPEP § 2143).

Therefore, it would be obvious to one with ordinary skill in the art to combine the lithium ion battery to use the above electrolytes to improve the charge and discharge characteristics of the battery.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda in view of Langan in view of Hibara and further and in further view of Unoki et al. (JP 2002-083632) (hereinafter "Unoki").

Regarding claim 7, Maeda, Langan and Hibara, teach all of the positively recited elements of claim 6. Maeda, Langan and Hibara do not teach the specific additives for the formulas 1-4.

However, Hibara teaches that the additive for formula one can be VC (vinylene carbonate) (see paragraphs 0031-0033).

Unoki teaches that the electrolyte for the secondary battery for formulas 2-4 uses the additive propane sultone (PS) for high temperature preservation of a cell and cycle characteristics (see paragraphs 0001 and 0008-0011). The combination of familiar elements is likely to be obvious when it does no more than yield predictable results. See *KSR Int'l v. Teleflex Inc.*, 127 Sup. Ct. 1727, 1742, 82 USPQ2d 1385, 1397 (2007) (see MPEP § 2143). Therefore, it would be obvious to one with ordinary skill in the art to

combine these additives to the lithium battery to improve the high temperature preservation of a cell and the cycle characteristics of the battery.

Response to Arguments

7. Applicant's arguments filed on March 19, 2009 have been fully considered but they are not persuasive.

Applicant's principal arguments are

(a) that Maeda does not teach the specific surface area of the metal hydroxide but rather for both the cobalt oxide and the magnesium hydroxide.

(b) that Langan teaches that it is essential to have a lithium carbonate as a component in the cathode.

(c) that the metal hydroxide can not be coated on the cathode active particles.

In response to Applicant's arguments, please consider the following comments.

(a) Maeda teaches that the magnesium hydroxide coats the entire cobalt oxide particle, therefore the specific surface area that is stated would be the specific surface area of the metal hydroxide since it is on the surface of the particle.

(b) the claim does not state anything that would exclude lithium carbonate from being included in the cathode.

(c) the claim does not state anything that would exclude the metal hydroxide from being coated on the cathode active material particle.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PATRICIA DAVIS whose telephone number is (571)270-7868. The examiner can normally be reached on 7:30am-5pm EST. Monday-Friday, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on 571-272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/PATRICIA DAVIS/
Examiner, Art Unit 1795

/Dah-Wei D. Yuan/
Supervisory Patent Examiner, Art Unit 1795